

EXCERCISE | 1504 HARVESTED WOOD PRODUCT CARBON WORKSHOP

CA BOARD OF FORESTRY AND FIRE PROTECTION/CALFIRE/UNIVERSITY OF MONTANA, BUREAU OF BUSINESS & ECONOMIC RESEARCH/USFS ROCKY MOUNTAIN RESEARCH STATION

Numerous flash drives are available that contain several data sets that we will be using during the exercise. Ask the organizers to obtain a flash drive.

Prepare computer and locate files to run the Harvested Wood Products model

1. Insert flash drive ("HWP C WORKSHOP") and navigate to folder 'Examples' on the flash drive; **note that all model files must be Excel formatted .csv and contain the same vintage years.**
2. Connect to the internet using the building's WiFi;
3. Open one of the following internet browsers that have known compatibility with the HWP model:
 - a. Google Chrome (**preferred**)
 - b. Microsoft Internet Explorer
 - c. Microsoft Edge;
4. Go to the Harvested Wood Products model at the following web address <http://maps.gis.usu.edu/HWP/>. The Home page should look like this:

The screenshot shows a web browser window with the address bar displaying "maps.gis.usu.edu/HWP/". The page title is "Harvested Wood Products". The navigation menu includes "Home", "About", "Advanced", and "Contact". A blue banner at the top says "Configure a simulation." with a link to download an Excel macro-enabled workbook. Below this, a section titled "Steps:" lists seven steps for configuring the simulation. Steps 1 through 5 involve uploading files for harvest data, timber product ratios, primary product ratios, distribution parameters, and ratios for burned wood with energy capture. Step 6 involves entering the number of iterations and an email address. Step 7 is to run the model. The footer indicates the copyright is 2018 by USFS for the Harvested Wood Products Modeling Application.

Harvested Wood Products

Home About Advanced Contact

Configure a simulation.

Download an Excel macro-enabled workbook that will help create the input data files [here](#). Use the HWP Ribbon to export data in the correct format for this tool or to add a new year. Do NOT change the basic format of any of the worksheets.

Steps:

- 1 Upload yearly harvest data**
Choose File No file chosen
- 2 Upload yearly timber product ratios**
Choose File No file chosen
- 3 Upload yearly primary product ratios or choose region for default ratios**
See a map of the regions [here](#).
Choose Region ▼ or Choose File No file chosen
- 4 Upload distribution parameters (optional and rarely used)**
Choose File No file chosen
- 5 Upload ratios for burned with energy capture (optional and rarely used)**
Choose File No file chosen
- 6 Enter number of iterations**
Any number larger than 1 will result in Monte Carlo simulation and the only output will be a table of confidence intervals around carbon storage for each year.
1 Address to send email when done with Monte Carlo:
- 7 Run the model**
Run

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Configure a simulation by completing the Steps

1. **Upload yearly harvest data** (how much wood was cut)
 - a. Click 'Choose file' and navigate to folder 'Examples' on the flash drive
 - b. Select '*1_MockHarvestDataExamp1*' and click 'Open.'
2. **Upload yearly timber product ratios** (the proportions of timber products which were made from the harvest each year)
 - a. Click 'Choose file' and navigate to folder 'Examples' on the flash drive
 - b. Select '*2a_CATimberProductData.csv*' and click 'Open.'
3. **Upload yearly primary product ratios or choose region for default ratios** (the proportions of primary products made from the estimated volume of timber products made each year)
 - a. Click 'Choose file' and navigate to folder 'Examples' on the flash drive
 - b. Select '*3a_CAPrimaryProductData.csv*' and click 'Open.'
4. **Upload distribution parameters (optional and rarely used)**

We will skip this step in this exercise
5. **Upload ratios for burned with energy capture (optional and rarely used)**

Optional in this exercise:

 - a. Click 'Choose file' and navigate to folder 'Examples' on the flash drive
 - b. Select '*5_BurnedwEC.csv*' and click 'Open.'
6. **Enter number of iterations ***

Make sure the left box (iterations) contains a '1' and the right box (email) is blank. If this step is populated otherwise, results contain only 90% confidence intervals for carbon in HWP (see * below).
7. **Run the HWP model**

Click 'Run' for single run simulation results.

Comparing different harvest scenarios

Repeat step 1 using any of the alternative example '*1_Mockcsv*' harvest data sets supplied to compare the HWP model outputs between different harvest scenarios. Do not change the timber product and primary product ratio files.

Comparing different timber and primary product distributions

Repeat steps 2 and 3 using the alternative '*2b_USFS_R5csv*' timber product and '*3b_USFS_R5csv*' primary product data sets to compare the HWP model outputs between different product distribution scenarios. Do not change the timber harvest file.

Results

The page containing single run simulation results should appear containing fourteen graphs. The results page will be available for 30 days if bookmarked or if the URL is shared.

All output, including and in addition to the fourteen graphs on the results page, are available at the 'Download all output' link. Additional output includes tables containing:

1. Selected and Yearly harvest
2. Selected and Yearly dispositions
3. Selected and Yearly net changes
4. Statistics of finer scale dispositions

* Enter number of iterations

"Any number larger than 1 will result in Monte Carlo simulation and the only output will be a table of confidence intervals around carbon storage for each year."

This feature provides confidence intervals using Monte Carlo simulation. The distribution parameters guides the Monte Carlo simulation that determines statistical confidence intervals around specific estimates. The suggested minimum number of iterations should be no less than 2,000 and 5,000 maximum. You must enter an email address for this feature to work; however, no email will be sent. The resulting confidence intervals will be found at the link on the 'Processing' page when the simulation is done processing, and results are available for download.

Contact information

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